

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

What is Claimed:

1. (Currently Amended) A circuit board, comprising:
a signal conductor;
a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor; and
a plurality of unequally spaced bridging ~~conductors~~ portions of the conductive plane that electrically couple the conductive plane across the opening and that have a width dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.
2. (Original) The circuit board of claim 1, wherein signal conductor has a width, and the opening has a width greater than the signal conductor width.
3. (Original) The circuit board of claim 1, wherein the signal conductor is centered with respect to the opening.
4. (Previously Presented) The circuit board of claim 1, wherein a portion of the opening overlaps the signal conductor.
5. (Previously Presented) The circuit board of claim 1, wherein no portion of the opening overlaps the signal conductor.
6. (Original) The circuit board of claim 1, wherein the signal conductor and the conductive plane form at least a portion of a signal-transmission path.
7. (Original) The circuit board of claim 6, wherein the transmission path presents substantially uniform impedance to a high-frequency signal.

8. (Original) The circuit board of claim 7, wherein the impedance of the transmission path is a function of the opening width.

9. (Original) The circuit board of claim 7, wherein the signal conductor has a width, and the impedance of the transmission path is a function of the signal conductor width.

10. (Original) The circuit board of claim 1, wherein the opening is substantially parallel to the signal conductor.

11. (Original) The circuit board of claim 1, wherein the opening is continuous.

12 - 13. (Canceled)

14. (Original) The circuit board of claim 1, further including an insulating layer between the signal conductor and the conductive plane.

15. (Original) The circuit board of claim 1, wherein the signal conductor comprises a trace.

16. (Original) The circuit board of claim 1, wherein the signal conductor is inside a circuit board.

17. (Previously Presented) A circuit board, comprising:
a signal conductor disposed in a first plane;
first and second conductive regions disposed in a second plane;
a first opening disposed in the second plane, substantially parallel to the signal conductor, and contiguous with and disposed between the first and second conductive regions;
a third conductive region disposed in the second plane;

a second opening disposed in the second plane, substantially parallel to the signal conductor, and contiguous with and disposed between the second and third conductive regions;

a plurality of unequally spaced bridging conductors that electrically couple the first, second and third conductive regions across the first and second openings;

wherein the first, second, and third conductive regions are operable at a common voltage; and

wherein respective dimensions of the first and second openings and a respective proximity of the openings to the signal conductor are selected to affect an impedance of a transmission path formed by the signal conductor and the second conductive region.

18. (Previously Presented) The circuit board of claim 17, wherein no portion of the first opening is located directly above or beneath the signal conductor.

19. (Previously Presented) The circuit board of claim 17, wherein the transmission path is formed by the signal conductor and the first, second, and third conductive regions.

20. (Previously Presented) The circuit board of claim 17, wherein a longitudinal centerline of the second conductive region coincides with a longitudinal centerline of the signal conductor.

21. (Previously Presented) The circuit board of claim 17, wherein the transmission path presents substantially uniform impedance to a high-frequency signal.

22. (Previously Presented) The circuit board of claim 17, wherein the impedance of the transmission path is a function of the first opening width.

23. (Previously Presented) The circuit board of claim 17, wherein the impedance of the transmission path is a function of the second conductive region width.

24. (Canceled)

25. (Currently Amended) A method of manufacturing a multi-layered printed circuit board that handles a high-frequency signal, comprising the steps of:
forming a signal-conducting trace on a first insulating layer;
forming a second insulating layer adjacent to the first insulating layer;
forming a conductive plane on the second insulating layer;
forming an opening in the conductive plane, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor;

forming a plurality of unequally spaced bridging ~~conductors~~ portions of the conductive plane across the opening; and

dimensioning the bridging ~~conductors~~ portions to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.

26. (Previously Presented) A method of manufacturing a multi-layered printed circuit board that handles a high-frequency signal, comprising the steps of:
forming a signal-conducting trace on a first insulating layer;
forming a second insulating layer adjacent to the first insulating layer;
forming a conductive plane on the second insulating layer;
forming in the conductive plane a spaced apart first opening and a second opening that are substantially parallel to the signal-conducting trace and that define electrically connected first outer, middle, and second outer regions of the conductive plane, respective dimensions of the openings and respective proximity of the openings to the signal-conducting trace being selected to provide a transmission path formed by the signal-conducting trace and at least the middle region of the conductive plane with a predetermined impedance; and

forming in the conductive plane a plurality of unequally spaced bridging conductors that electrically couple the first outer, middle, and second outer regions of the conductive plane across the first and second openings.

27. (Previously Presented) The method of claim 26, wherein the signal-conducting trace is aligned with the middle region of the conductive plane.

28. (Previously Presented) A method of conducting a high-frequency signal in a circuit board, comprising the steps of:

transmitting the high-frequency signal along a signal conductor disposed in a first plane of the circuit board; and

returning the high-frequency signal along a first conductive region in a second plane that also includes a second conductive region separated from the first conductive region by a first opening, a third conductive region separated from the first conductive region by a second opening, and a plurality of unequally spaced bridging conductors that electrically couple the first, second and third conductive regions across the first and second openings, the first, second, and third conductive regions at a common voltage, dimensions of the openings and proximity of the openings to the signal conductor defining an impedance experienced by the signal.

29. (Canceled)

30. (Currently Amended) An electronic system, comprising:

a circuit board, comprising,

a signal conductor,

a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor, and

a plurality of unequally spaced bridging ~~conductors~~ portions of the conductive plane that electrically couple the conductive plane across the opening and that have a width dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.

31. (Previously Presented) A system, comprising:

a circuit board, comprising,

a signal conductor disposed in a first plane,

first and second conductive regions disposed in a second plane,

a first opening disposed in the second plane, substantially parallel to the signal conductor, and contiguous with and disposed between the first and second conductive regions,

a third conductive region disposed in the second plane,

a second opening disposed in the second plane, substantially parallel to the signal conductor, and contiguous with and disposed between the second and third conductive regions,

a plurality of unequally spaced bridging conductors that electrically couple the first, second and third conductive regions across the first and second openings,

wherein the first, second, and third conductive regions are operable at a common voltage, and

wherein respective dimensions of the first and second openings and a respective proximity of the openings to the signal conductor are selected to affect an impedance of a transmission path formed by the signal conductor and the second conductive region.

32. (Previously Presented) The circuit board of claim 1 wherein the signal trace is disposed in a plane that is separate from and parallel to the conductive plane.

33. (Currently Amended) A circuit board, comprising:

a signal conductor;

a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor; and

only one bridging conductor portion of the conductive plane that electrically couples the conductive plane across the opening and that has a width dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.

34. (New) A circuit board, comprising:

a signal conductor;

a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor; and

a plurality of unequally spaced bridging conductors that are planar to the conductive plane and electrically couple the conductive plane across the opening and that have a width dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.

35. (New) A circuit board, comprising:

a signal conductor;

a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor; and

only one bridging conductor that is planar to the conductive plane and electrically couples the conductive plane across the opening and that has a width dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.